DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	ELM BROOK POOL	Lake Area (ha):	86.52
Town:	HOPKINTON	Maximum depth (m):	7.6
County:	Merrimack	Mean depth (m):	2.5
River Basin:	Merrimack	Volume (m^3):	948500
Latitude:	43°11'00" N	Relative depth:	1.1
Longitude:	71°43'45" W	Shore configuration:	4.58
Elevation (ft):	384	Areal water load (m/yr):	1256
Shore length (m):	10000	Flushing rate (yr^{-1}):	504.0
Watershed area (ha):	110592.0		
% watershed ponded:	---	Lake type:	artificial

BIOLOGICAL:	25 January 1989	11 August 1988
DOM. PHYTOPLANKTON (% TOTAL) #1	UROGLENOPSIS 75%	CHRYSOSPHAERELLA 55%
#2	SYNURA 20%	DINOBRYON 20%
#3		
PHYTOPLANKTON ABUNDANCE (cells/mL)		555.0
CHLOROPHYLL-A (ug/L)		7.80
DOM. ZOOPLANKTON (% TOTAL) #1	SYNCHAETA 55%	KERATELLA 26%
#2	KERATELLA 15%	NAUPLIUS LARVA 26%
#3		KELLICOTTIA 23%
ROTIFERS/LITER	275	105
MICROCRUSTACEA/LITER	5	83
ZOOPLANKTON ABUNDANCE (#/L)	297	196
VASCULAR PLANT ABUNDANCE		Common
SECCHI DISK TRANSPARENCY (m)		2.6
BOTTOM DISSOLVED OXYGEN (mg/L)	6.3	0.0
BACTERIA (fecal col., #/100 ml) #1		
#2		
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 2.4
Hypolimnion volume (m^3): None

CHEMICAL:

Lake: ELM BROOK POOL
Town: HOPKINTON

	25 January 1989		11 August 1988		
DEPTH (m)	1.5	3.5	1.5		4.5
pH (units)	6.2	6.2	6.6		6.1
A.N.C. (Alkalinity)	10.4	10.4	7.1		8.4
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		
TOTAL KJELDAHL NITROGEN	0.90	0.81	0.43		
TOTAL PHOSPHORUS	0.019	0.016	0.014		
CONDUCTIVITY (μ mhos/cm)	95.5	100.6	74.9		77.6
APPARENT COLOR (cpu)	47	51	52		53
MAGNESIUM			0.80		
CALCIUM			3.6		
SODIUM			7.8		
POTASSIUM			0.50		
CHLORIDE	18	19	14		
SULFATE	6	5	4		
TN : TP	47	51	31		
CALCITE SATURATION INDEX			3.3		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1988

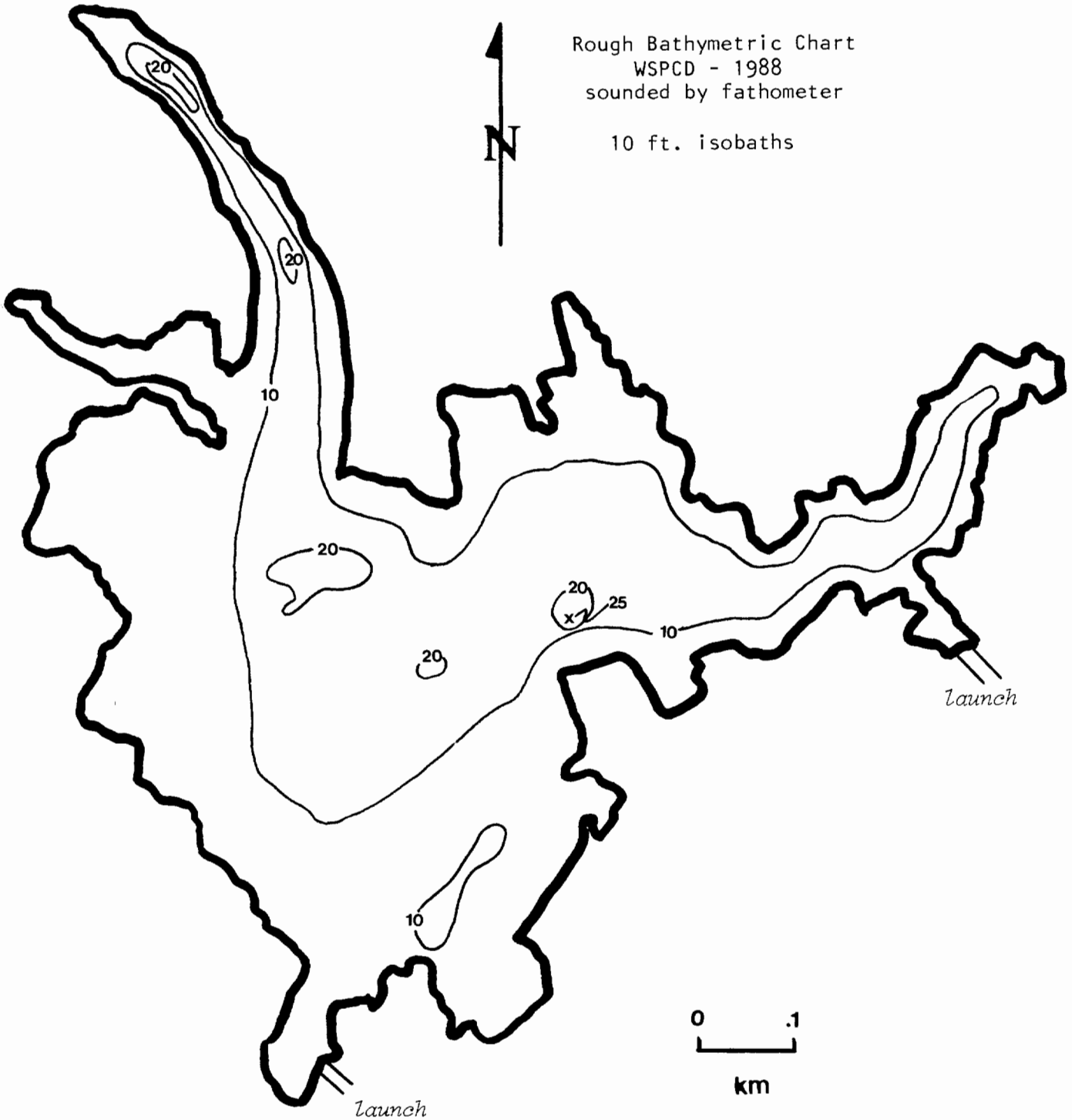
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	3	3	1	7	Meso.

COMMENTS:

1. Elm Brook Pool is a flood control impoundment created by the Corps of Engineers' Hopkinton Dam on the Contoocook River. Theoretically, the watershed of the Pool is the Contoocook River watershed above the dam. The drainage area of the USGS gaging station, located .2 miles downstream of Hopkinton Dam, was used as the watershed for Elm Brook Pool. At high water levels, water flows out of Elm Brook Pool in the opposite direction, into the Piscataquog River basin. The % watershed ponded was not calculated.
2. The topography of the pool bottom was very uneven. The sounding map is rough at best.

ELM BROOK POOL

HOPKINTON



FIELD DATA SHEET

LAKE: ELM BROOK POOL TOWN: HOPKINTON
DATE: 08/11/88 WEATHER: HAZY. HOT. HUMID

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	29.4	6.2	82 %
	1.0	28.4	6.0	78 %
	2.0	26.7	2.3	31 %
	3.0	22.3	0.0	0 %
	4.0	18.6	0.0	0 %
	5.0	16.0	0.0	0 %
	6.0	13.9	0.0	0 %

SECCHI DISK (m): 2.6

BOTTOM DEPTH (m): 6.5

TIME: 1140

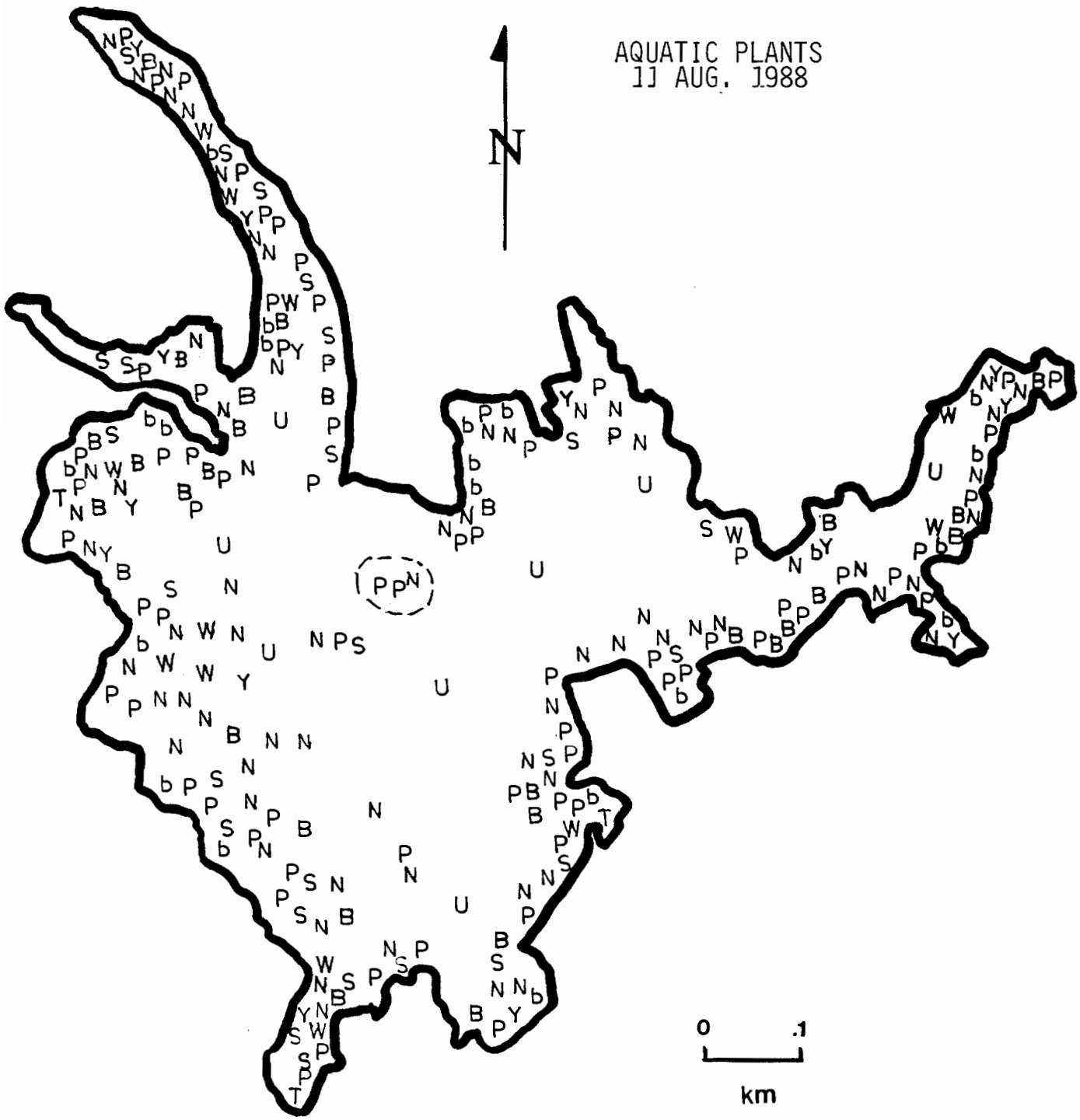
COMMENTS: No dissolved oxygen was present below about 2.5 meters.

*Dissolved oxygen values are in mg/L

ELM BROOK POOL

HOPKINTON

AQUATIC PLANTS
11 AUG. 1988



AQUATIC PLANT SURVEY

LAKE: ELM BROOK POOL TOWN: HOPKINTON DATE: 08/11/88

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
P	Pontederia cordata	Pickerelweed	Common
N	Nymphaea	White water lily	Common
Y	Nuphar	Yellow water lily	Sparse
W	Potamogeton	Pondweed	Sparse
S	Sparganium	Bur reed	Sparse
b	Scirpus	Bulrush	Scattered
T	Typha	Cattail	Sparse
U	Utricularia	Bladderwort	Scattered
B	Brasenia schreberi	Water shield	Sparse

OVERALL ABUNDANCE: Common

GENERAL OBSERVATIONS:

1. Submerged growth, including bladderwort, was scattered throughout the pool.
2. Greens (35%) were the dominant class of whole-water phytoplankton, but the blue-green Lyngbya (25%) was the dominant genus.